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10/806,842	03/23/2004	Krishnakant P. Vora	59595US002	4248
32692 7590 12/05/2008 3M INNOVATIVE PROPERTIES COMPANY PO BOX 33427 ST. PAUL, MN 55133-3427				
EXAMINER				
SANDERS, KRIELLION ANTIONETTE				
ART UNIT		PAPER NUMBER		
1796				
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**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

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### Office Action Summary

**Application No.**

10/806,842

**Applicant(s)**

VORA, KRISHNAKANT P.

**Examiner**

Kriellion A. Sanders

**Art Unit**

1796

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 8/29/08.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-4 and 6-36 is/are pending in the application.
- 4a) Of the above claim(s) 22-36 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-4, 6-21 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO/CDC)
- 4) ☐ Interview Summary (PTO-413)
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: \_\_\_\_\_
- Paper No(s)/Mail Date \_\_\_\_\_

## **DETAILED ACTION**

### ***Election/Restrictions***

1. Applicant's election without traverse of Group I, claims 1-4 and 6-21, in the reply filed on 3/20/07, is acknowledged. Claims 22-33 are withdrawn from further consideration pursuant to 37 CFR 1.142(b) as being drawn to a nonelected invention, there being no allowable generic or linking claim. Election was made **without** traverse in the reply filed on 3/20/07.
1. This application contains claims 22-33 drawn to an invention nonelected with traverse in the reply filed on 3/20/07. A complete reply to the final rejection must include cancellation of nonelected claims or other appropriate action (37 CFR 1.144) See MPEP § 821.01.
- 2.

### ***Claim Rejections - 35 USC § 103***

The references are relied upon for reasons of record.

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1-2, 5-7 and 6-16 and 1 8-21 are rejected under 35 U.S.C. 103(a) as being unpatentable over Beall et al, US Patent No. 5,830,528 in view of Patel et al, US Patent No. 6,638,993

Beall et al discloses compositions, in particular, intercalates and exfoliates thereof formed by contacting a layered phyllosilicate with a functional organic monomer (intercalant monomer), having at least one hydroxyl functionality and/or an aromatic ring, to sorb or intercalate the intercalant monomer or mixtures of intercalant monomers between adjacent phyllosilicate

platelets. Patentee indicates that any Swellable layered material that sufficiently sorbs the intercalant monomer to increase the interlayer spacing between adjacent phyllosilicate platelets to at least about 5 .ANG., preferably to at least about 10 .ANG may be used in the practice of the invention. Useful swellable, layered materials include phyllosilicates, such as smectite minerals. In accordance with another embodiment of the invention, the intercalates can be exfoliated and dispersed into one or more melt-processible thermoplastic and/or thermosetting 'matrix oligomers or polymers, or mixtures thereof. Beall et al indicates that the pentaerythritol which is used in the patented invention is commonly used in self-extinguishing, nondripping, flame-retardant compositions with a variety of polymers, including olefins, vinyl acetate, alcohols, methyl methacrylate, and urethanes. The pentaerythritol is used in conjunction with trimethylolpropane esters for solventless lacquer formulations Patentee indicates that products of the patented invention containing phyllosilicate platelets, based on polyglycerol matrix monomers, are useful in surface-active agents, plasticizers, adhesives, lubricants, antimicrobial agents, medical specialties and dietetic foods. Patentee therefor suggests the use of the intercalates, which comprise pentaerythritol and acrylic esters, in both flame retardant and/or antimicrobial compositions. Vulcanizable and thermoplastic rubbers useful as matrix polymers in the practice of the invention include ethylene-propylene-diene terpolymers, and ethylene-acrylic acid copolymers. Other topically-active compounds can be included in the compositions of the invention in an amount sufficient to perform their intended function. These include, for example, zinc oxide. Beall suggests the components of applicant's claims. The selection of each of these components from the patented disclosure would have been obvious to the ordinary practitioner of this art at the time of applicant's invention. See the abstract and claims and col. 8, line 50 through

col. 14, line 34. A flame retardant synergist is any substance that aids in contributing flame retardancy to the compositions. It usually enhances the efficiency of the flame retardant agent. This synergist may in some cases be another flame retardant component. The use of flame retardant synergists is conventional and well documented in the art. Since applicant's claims do not indicate a specific synergist, any component in Beall et al affording this enhancement in flame retardancy would function as a flame retardant synergist. At col. 13, line 10 through col. 14, line 34, Beall et al states that, "pentaerythritol is used in self-extinguishing, nondripping, flame-retardant compositions with a variety of polymers, including olefins, vinyl acetate and alcohols, methyl methacrylate, and urethanes. Phosphorus compounds are added to the formulation of these materials. When exposed to fire, a thick foam is produced, forming a fire-resistant barrier". The pentaerythritol and phosphorus compounds of Beall et al would inherently function as a flame retardant synergist. Applicant's claims must be interpreted in the broadest sense. In the absence of a recitation to a specific flame retardant synergist and in the absence of an indication of unexpected results attributable to the use of a generic flame retardant synergist, this particular claim limitation of the present application is considered obvious over Beall et al.

While the particular flame retardant 1, 2 bis(tetrabromophthalimide) ethane is not specifically disclosed by the references, it is a conventional halogenated flame retardant. It is well known in the art that halogenated compounds, (particularly brominated and chlorinated compounds), provide flame retardant properties. Each of Patel et al and Beall et al indicate that flame retardants may be used. Applicant has provided for nothing of an unexpected nature by indicating a specific and conventional flame retardant component for use in the invention.

While this particular antimicrobial agent which comprises a salt complex of pyrithione is not specifically disclosed by the references, it is a conventional antimicrobial agent. Beall et al and Patel et al are specifically directed towards achieving antimicrobial properties. Applicant has provided no indication that he is achieving a property of an unexpected nature by using a conventional antimicrobial agent.

1. Claims 1-2, 5-7 and 6-16 and 18-21 are rejected under 35 U.S.C. 103(a) as being unpatentable over. Patel et al, US Patent No. 6,638,993.

Patel et al discloses non-silicone vulcanized rubber articles made from at least a majority by weight of ethylene-propylene-diene modified (terpolymer) rubber (such as, without limitation, EPDM and/or NBR) that further include silver-based compounds to provide highly desirable long-term antimicrobial characteristics within the cured rubber articles. An object of the invention is to provide a vulcanized EPDM and/or NBR rubber-containing article, comprising filler components and plasticizers (such as silica~ metal salts, organic salts, calcium carbonate, metal oxides, ~ and oils). The colored vulcanized rubber-containing article of the invention comprise at least one non-discoloring silver ion control release additive, such as those selected from the group consisting of fillers (such as calcium carbonate, china or calcined clay, silane-coated or mixed bivalent metal silicates, aluminum trihydrate, and any mixtures thereof), at least one coloring agent to provide a color to the article other than black, and, optionally and at least one plasticizer (e.g., oils such as phthalate oils and paraffinic oils). Additionally, this invention encompasses a method of producing such a colored vulcanized. Additionally, generally and preferably, certain fillers and oils, (such as bivalent silicates, silane-coated or mixed silica, zinc oxide, clays, aluminum trihydrate salts, calcium carbonate, and other types that do not discolor

silver antimicrobial-containing EPDM and/or NBR, as merely preferred examples, rubber formulations) are incorporated into the compositions to provide both flexural modulus and structural integrity to vulcanized rubber articles. The preferred silver-based ion exchange material is an antimicrobial silver zirconium phosphate. Patel et al provides for accelerators and flame retardants. See col. 9, lines 38-45. Since applicant's claims do not indicate a specific synergist, any component in Patel et al affording enhancement in flame retardancy would function as a flame retardant synergist. Patel et al is considered to provide incentive for the broadly claimed flame retardant synergist of applicant's claims.

While the particular flame retardant 1, 2 bis(tetrabromophthalimide) ethane is not specifically disclosed by the references, it is a conventional halogenated flame retardant. It is well known in the art that halogenated compounds, (particularly brominated and chlorinated compounds), provide flame retardant properties. Each of Patel et al and Beall et al indicate that flame retardants may be used. Applicant has provided for nothing of an unexpected nature by indicating a specific and conventional flame retardant component for use in the invention.

While this particular antimicrobial agent which comprises a salt complex of pyrithione is not specifically disclosed by the references, it is a conventional antimicrobial agent. Beall et al and Patel et al are specifically directed towards achieving antimicrobial properties. Applicant has provided no indication that he is achieving a property of an unexpected nature by using a conventional antimicrobial agent.

### ***Response to Arguments***

2. Applicant's arguments filed 8/29/08 have been fully considered but they are not persuasive.
3. Applicant argues that a prima facie case of obviousness has not been made over the current claims, however since the current claims have been amended to include limitations not originally present this argument seems irrelevant.
4. Applicant argues the Examiner has shown no teaching or suggestion in Beall to combine pentaerythritol with one or more polyglycerides in the intercalate of a phyllosilicate and within an ethylene-propylene-diene terpolymer thermoplastic matrix to get Applicant's claimed invention. However, Beall suggests the combination of these components by naming them as suitable components for the patented invention.
5. Applicant argues that neither reference relied upon suggests the use of a flame retardant additive in an amount greater than 10% to about 30% by weight of the composition.

As stated above Patel et al indicates that other additives present within the inventive vulcanized rubber article including the flame retardants, should be present, if at all, in rather low amounts, of from about 0.1 to about 10 ppwr. The upper limit of 10ppwr overlaps with applicant's lower limit of 10%. Additionally, applicant has not shown that he has achieved anything of an unexpected nature by including any flame retardant agent at these claimed amounts. In the absence of a showing of unexpected results attributable to the higher amounts for any flame retardant, the present claims are found to be obvious over both Beall et al and Patel et al.

With respect to claims 9 and 18, the Applicant can find no teaching or suggestion of an acrylic co-agent in Patel. For at least this additional reason, the Applicant respectfully traverses the rejection of claims 9 and 18 over Patel.



However, the acrylic co-agent is suggested by Beall et al as indicated above.

Claims 3 and 8 are rejected under 35 U.S.C. 103(a) as being unpatentable over Patel *et al* (US Patent No 6,638,993) in view of Dekkers *et al* (US Patent No 5,147,920).

Patel et al is discussed above. With respect to claim 8, Patel teaches that peroxides can be part of the composition (see abstract and various teachings in the spec). With respect to the amount of the terpolymer, Patel teaches that the rubber component is present in an amount of about 10 to 1000 parts of the entire composition (col. 6, lines 10-25). The amount of antimicrobial agent may range between 0.1 to 10% (col. 7, lines 20-25) and the amount of flame retardant may range 0.1 to 10 pphr (parts per hundred of resin). See col. 9, lines 40-45. See also the various formulations at columns 11, 12 and 13. Clearly the relative amounts of each component disclosed by Patel et al falls well within the claimed ranges of the respective components. Patel fails to teach use of 1, 2 bis(tetrabromophthalimide) ethane as a flame retardant as required by instant claim 3. In that respect, Dekkers *et al* relates to a polymer composition comprising glass fibres and flame retardants. Exemplary known flame retardants include 1,2 bis(tetrabromophthalimide) ethane. See col. 3, lines 50-51. Dekkers teaches that other flame retardants provide less tracking resistance. See col. 2, lines 57-64. Thus, it would have been obvious to use the 1,2 bis(tetrabromophthalimide) ethane of Dekkers in the composition of Patel as a flame retardant.

Applicant argues that Patel et al does not disclose the special type of glass fibers ("milled glass fibers (see col. 2, lines 49-50 of Dekkers)) that are required by Dekkers to get favorable

tracking resistance. As such, there is no teaching or suggestion that would lead one of ordinary skill in the art to combine the flame retardant of Dekkers with the vulcanized rubber article of Patel to get Applicant's claim 3. With respect to claim 8, Applicant argues that he has already shown that claim 8 is patentable over Patel (which discloses peroxide, for example, in col. 6, line 15). Dekkers does not mention a peroxide so the Applicant finds this rejection ambiguous and requests further clarification from the Examiner. Firstly, the incorporation of the specific flame retardants of Dekkers as those flame retardants generically suggested by Patel et al would have been obvious to one of ordinary skill in the art at the time of applicant's invention.

Secondly, Patel provides sufficient incentive for the peroxide of applicant's claim 8.

Claim 4 is rejected under 35 U.S.C. 103(a) as being unpatentable over Patel *et al* (US Patent No 6,638,993) in view of Yao (US Patent No 6,551,608).

Patel et al is discussed above. Patel does not teach the use of pyrithione as an antimicrobial agent. Yao teaches porous plastic materials which comprise antiviral or antimicrobial properties. See col. 1, lines 65-67. The plastic materials may include ethylene-propylene-diene polymers (column 2, lines 10-20). Yao at col. 9, lines 1-5, teaches that the pyrithione salt complex can be used as an antimicrobial agent. Since Yao teaches to use pyrithione salt complex as an antimicrobial agent, it would have been obvious to one of ordinary skill in the art use such antimicrobial agent in the terpolymer composition of Patel with a reasonable expectation that it would function as taught by Yao.

In response to applicant's arguments to this rejection, the incorporation of the specific antimicrobial agents of Yao as those antimicrobial agents generically suggested by Patel et al

would have been obvious to one of ordinary skill in the art at the time of applicant's invention, since they are considered to be capable of providing the necessary antimicrobial activity to the ethylene- propylene-diene polymers of Yao .

Claims 11, 12, 14, 15, 17, and 19-21 are rejected under 35 USC 103(a) as being unpatentable over Patel et al (US Patent No 6,638,993) in view of Anderson (US Patent No 4,082,725) and further in view of Dekkers (US Patent No 5,147,920) and still further in view of Hirano et al (US Patent no 5,871,883).

Patel et al is discussed above. With respect to claim 11, Patel teaches that plasticizers can be used as part of the compositions (see the abstract). Exemplary plasticizers include paraffinic oils. See col.3, lines 50-55. The skilled person in this art will appreciate that paraffinic oils are hydrocarbon oils. Patel fails to teach the use of certain antioxidants and flame retardant synergists as part of his composition. Note that applicant in his specification has stated that flame retardant synergists (i.e., flame enhancing agents) include antimony compounds such as antimony trioxide. See page 4, lines 12-18. The reference of Anderson teaches a flame retardant plastic composition that may contain an enhancing agent which enhances the flame retardancy of the flame retardant. Exemplary enhancing agents include antimony trioxide. See col. 4, lines 22-34. Anderson also teaches that the plastic composition may comprise antioxidants. See col. 4, lines 45-50. Regarding claim 12, neither Patel nor Anderson teaches a flame retardant which comprises 1,2 bis(tetrabromophthalimide) ethane. As pointed out above, Dekkers *et al* relates to a polymer composition comprising glass fibres and flame retardants. Exemplary known flame retardants include 1,2 bis(tetrabromophthalimide) ethane. See col. 3, lines 50-51. Because it was known to use 1,2 bis(tetrabromophthalimide) ethane as a flame retardant, it would have been

obvious to use the flame retardant enhancing agent such as antimony trioxide in the composition of Patel so as to enhance Patel's flame retardants. Since Anderson teaches the use of antioxidants as part of his flame retardant plastic composition, it would have been obvious for one skilled in the art to use antioxidants in the Patel composition. For claim 15, Patel teaches the use of silica and/or clay as part of his composition. See col. 3, lines 15-25. Regarding claim 17, Patel teaches that peroxides can be part of the composition (abstract). With respect to claim 19, Patel teaches that zinc oxide can be a filler in his composition. See col. 4, lines 51-55. Regarding claims 20 and 21, it was known in the prior art that carbon black can be used as a laser beam absorber. See Hirano et al at col. 1, lines 55-61. Patel also teaches the use of carbon black in his composition. See col. 5, lines 55-58. Clearly then, Patel's carbon black would inherently function as a laser beam absorber and hence as an energy beam absorber.

6. In response to applicant's arguments concerning the amounts of additives employed in the patented invention, as stated above Patel et al indicates that other additives present within the inventive vulcanized rubber article including the flame retardants, should be present, if at all, in rather low amounts, of from about 0.1 to about 10 pphr. The upper limit of 10pphr overlaps with applicant's lower limit of 10%. Additionally, applicant has not shown that he has achieved anything of an unexpected nature by including any flame retardant agent at these claimed amounts. In the absence of a showing of unexpected results attributable to the higher amounts for any flame retardant, the present claims are found to be obvious over Patel et al. and all secondary references.

Claim 13 is rejected under 35 U.S.C. 103(a) as being unpatentable over Patel *et al* (US Pat. No 6,638,993) in view of Anderson (US Pat. No 4,082,725) and further in view of Yao (US Pat. No 6,551,608).

Patel *et al* is discussed above. With respect to claim 13, neither Patel nor Anderson teaches the use of a salt complex of pyrithione as an antimicrobial agent. Note however, that it was well known in the prior art to use such salt complex of pyrithione as an antimicrobial agent. See Yao at column 9, lines 1-5. As such, the use of the salt complex of pyrithione as an antimicrobial agent in the composition of Patel would have been obvious.

Applicant states that since the combinations have been shown to be improper in earlier discussion the Applicant asserts that the Examiner has not made a prima facie case of obviousness. Applicant repeats the above arguments in response to this rejection and therefore, the examiner response as indicated above is also repeated.

Claims 16 and 18 are rejected under 35 USC 103(a) as being unpatentable over Patel *et al* (US Pat. No 6,638,993) in view of Anderson (US Pat. No 4,082,725) and further in view of Kozima *et al* (US Pat. No 5,859,076).

Patel *et al* is discussed above. Neither Patel nor Anderson teaches the use of a silane coupling agent of claim 16. Kozima however, teaches open cell foamed articles including silane grafted polyolefins articles. The polyolefins can be a terpolymer such as ethylene propylene diene (col. 2, lines 5-15). Regarding claim 18, Kozima teaches that the polyolefins may also contain acrylic components. See col. 6, lines 45-55. Kozima further teaches that the foamed material may contain antioxidants, pigments, colorants and antimicrobial agents. See col.2, line

66-col.3, line 10. Kozima further teaches that the silane can include vinyl silane, a known silane coupling agent. Compare applicant's specification at page 7, lines 18-20. Kozima further teaches that his foamed article has good crushing properties (abstract). The silane based article of Kozima also has long expansion cycles as well as good dimensional stability. See column 8, lines 55-65.

Because Kozima teaches a composition which has antimicrobial properties as well as coupling agents, it would have been obvious to use the silane coupling agent of Kozima in the composition of Patel so as to obtain desirable properties such as good crushing properties and good dimensional stability. It would also have been obvious to use acrylic based polymers in the composition of Patel. The claimed invention, taken as a whole, would have been obvious in view of the prior art.

Applicant traverses this rejection based upon the previously discussed improper combination of Patel and Anderson. Based upon earlier arguments, the Examiner has not made a prima facie case of obviousness and the rejection should be withdrawn. Since Applicant has repeated the above arguments in response to this rejection, the examiner's response as indicated above is also repeated.

Since no claim is found to be allowable and the restriction is proper for reasons set forth above, the request for rejoinder will not be allowed.

### ***Conclusion***

7. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Kriellion A. Sanders whose telephone number is 571-272-1122. The examiner can normally be reached on Monday through Thursday 8:30am-7:00pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Harold Pyon can be reached on 571-272-1498. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Kriellion A. Sanders/

Primary Examiner, Art Unit 1796

Kriellion A. Sanders  
Primary Examiner  
Art Unit 1796

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